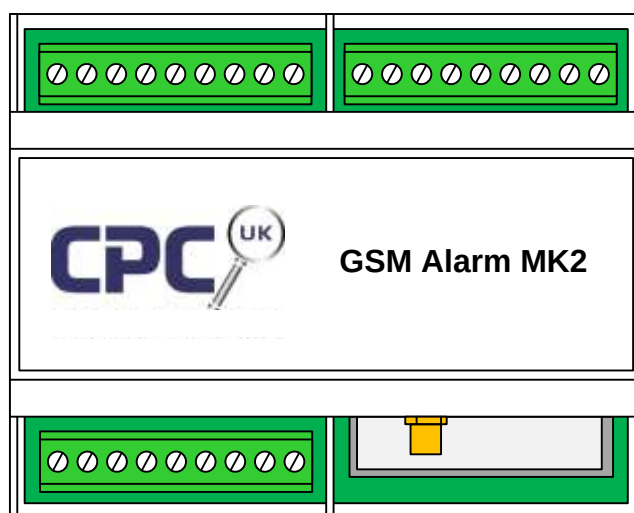




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GSM Alarm MK 2

User Manual Version 1.00

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1. Introduction

The GSM Alarm MK2 is a simple alarm monitoring unit, capable of sending alarm messages via SMS to up to 6 mobile phone numbers.

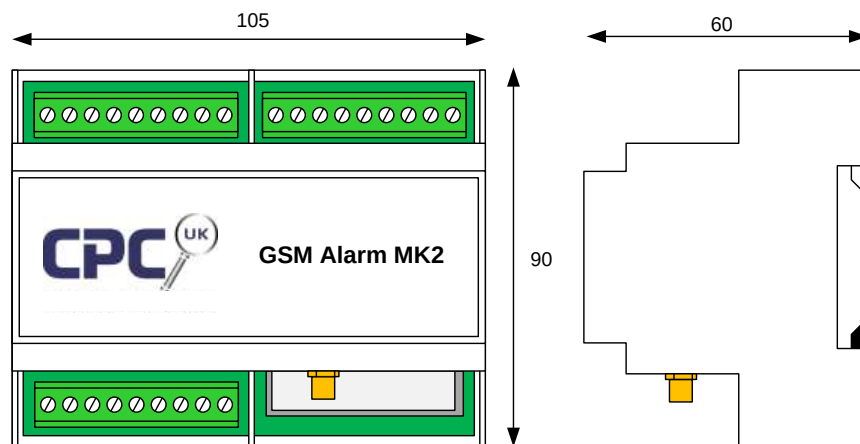
The unit incorporates a number of digital inputs which can be used to monitor fault signals from other equipment. When triggered each input will send a different alarm message, alarm messages can be programmed by the user.

Once an alarm has been triggered, alarm messages must be acknowledged by the user by sending an acknowledgement SMS message back to the unit. Until an acknowledgement is received, the unit will keep re-sending the alarm message.

The unit accepts a standard mobile phone SIM card (contract or pay-as-you-go), and is configured by the user by sending SMS messages to the unit.

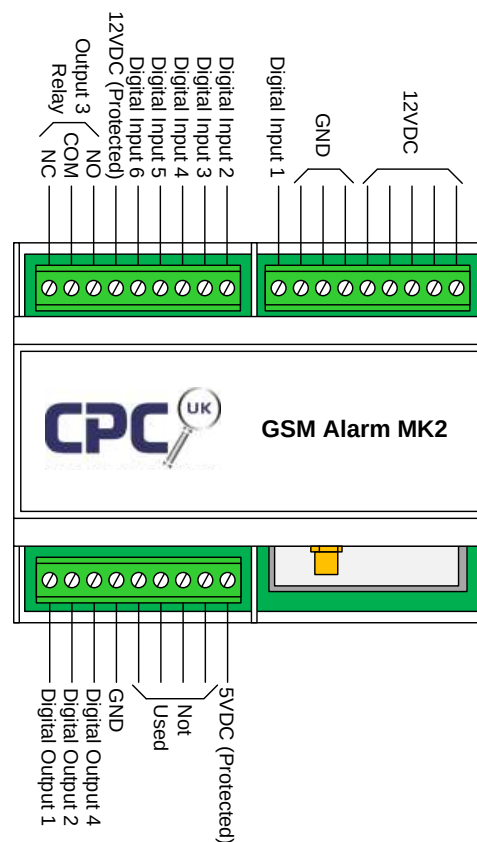
2. Layout and Connections

The unit is supplied within a standard DIN rail mounting enclosure,



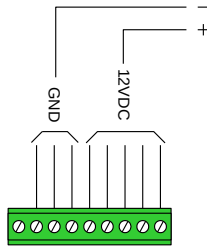
2.1 Screw Terminal Connections

The unit includes 3 x 9 way screw terminal connector blocks, these are used for connection to the power supply and remote devices for monitoring and control;



2.2 Power Connection

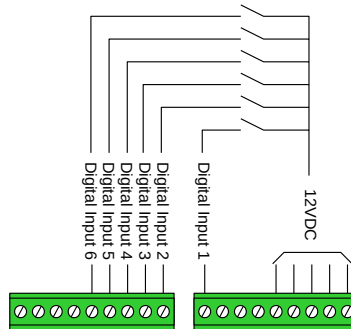
The unit requires a 12VDC power supply, there are multiple terminals where the power maybe connected – only one pair (GND and 12VDC) need to be connected;



2.3 Digital Input Connection

There are 6 digital inputs which can be used for monitoring alarm conditions of other devices. If the digital input is activated, and alarm SMS message is sent (if the unit is correctly programmed – see section 3 on programming and operating the unit).

Inputs operate as normally open (i.e. a closed circuit will activate an alarm SMS message);

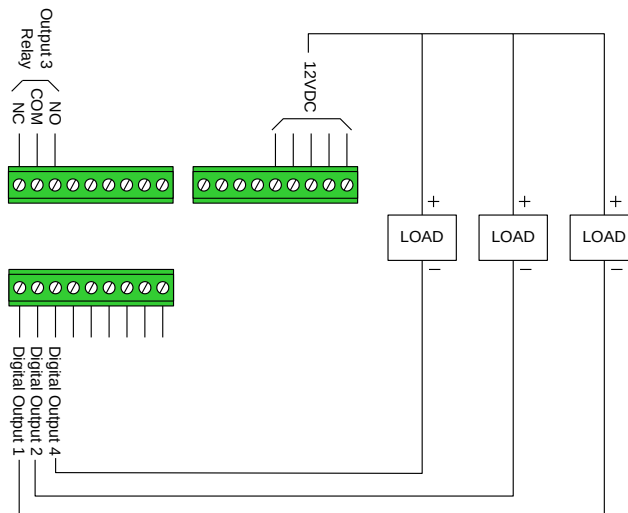


2.4 Digital Output Connection

There are 4 digital outputs which can be used to control other devices. Outputs can be turned ON and OFF by sending an SMS message to the unit.

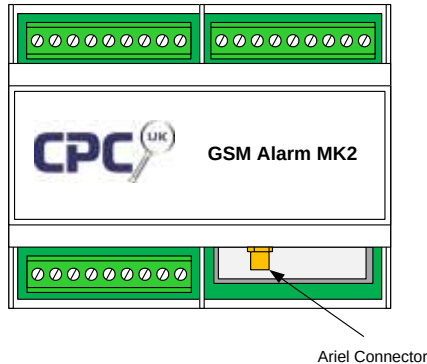
Digital output 3 is supplied as a volt-free relay, with both NO and NC contacts available. The maximum rating for the relay contacts is 24VDC / 240VAC @ 5A.

All other outputs are low voltage Mosfet open drain, capable of switching up to 50VDC.



2.5 Ariel Connection

The unit needs a GSM ariel in order for it to operate. The unit can be supplied upon request with either local (stubby) ariel, or a remote ariel with a 2m cable. Both types of ariel are connected to the unit via a gold BNC type connector, above the GSM modem.

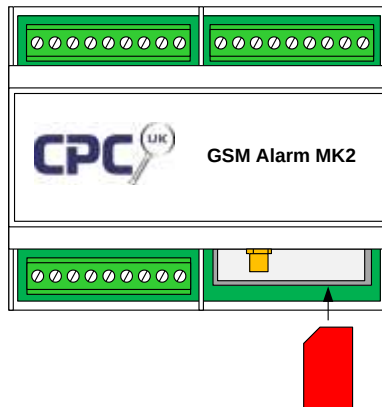


2.6 SIM Card

The unit must be fitted with a mobile phone SIM card before it will operate. Any standard contract or pay-as-you-go SIM card will be suitable.

Note: If using a pay-as-you-go SIM card, you must ensure the SIM card is topped up with credit – the unit will not report any messages if credit has run out.

Before installing or removing the SIM card, you must ensure the unit is **powered off**. To install the card, push it into the slot on the GSM modem, until you feel / hear a click. To remove the card, push the card until you feel / hear a click – the card should then pop out.



2.7 Installation Location

The unit (or remote ariel) must be installed in a location with good mobile phone reception from the service provider which has supplied the SIM card installed in the unit.

3. Programming and Operation

The unit is programmed by sending SMS command messages to the unit. It is important that the correct command is sent (as outlined in this manual) by the user; otherwise the unit will ignore the command.

Note: Commands are not case sensitive

3.1 Programming phone numbers

The unit maybe programmed with up to 6 mobile phone numbers, these phone numbers will be the numbers which will receive SMS alarm messages.

To program any phone number, send the following command;

SetnnX +NNNNNNNNNNNN

Where "X" = the phonebook entry number from 1 to 6

Where "+NNNNNNNNNNNN" = the phone number including the country code

Note: You must always include a "+" before the number as shown

The unit will reply, confirming the command has been accepted;

X: +NNNNNNNNNNNNN-MMMMMMMMMMMMMMM

Where "X" = the phonebook entry number that has been changed from 1 to 6

Where "+NNNNNNNNNNNN" = the actual phone number in that phonebook entry

Where "-MMMMMMMMMMMMMM" = the network tag for this number

For example;

if you send; *Setnn1 +447799123456*
the unit will reply ; *1: +447799123456-C91447799214365"*

A user may also enter their own phone number without needing to enter the actual phone number at all, to do this send the following command from the phone number you wish to enter;

SetnrX

Where "X" = the phonebook entry number from 1 to 6

The unit will reply with "OK" if the command has been accepted.

3.2 Deleting phone numbers

Before changing any phonebook entry, the old entry must be deleted.

To delete all phonebook entries, send the command;

Clrnr0

The unit will reply with "OK" if the command has been accepted.

To delete a specific phonebook entry, send the command;

ClrnrX

Where "X" = the phonebook entry to be deleted from 1 – 6

The unit will reply with "OK" if the command has been accepted.

3.3 Programming alarm SMS message text

The unit will send different messages for each digital input which is in alarm.

The factory default messages are as follows;

Input 1 = Input_1_Alarm	Input 2 = Input_2_Alarm
Input 3 = Input_3_Alarm	Input 4 = Input_4_Alarm
Input 5 = Input_5_Alarm	Input 6 = Input_6_Alarm

The user may change the alarm messages by sending the following command;

SettxX AAAAAAAAAAAAAAAAAA

Where "X" = the input number

Where "AAAAAAAAAAAAAAAA" = The actual message you wish the unit to send (up to 15 Characters)

The unit will reply, confirming the command has been accepted;

X-AAAAAAAAAAAAAAAAAA

Where "X" = the input number

Where "AAAAAAAAAAAAAAAA" = The actual message the unit will now send.

For example;

if you send;	<i>Settx1 Gas_Leak_Alarm</i>
the unit will reply ;	<i>1-Gas_Leak_Alarm</i>

3.4 Reading unit status

You can read the unit status by sending the following command;

Getst

The unit will reply with the unit status message;

INP=IIIII OUT=OOOO SQ:ZZ,Z T=X W=V S=YYYY

Where IIIII = The input states for inputs 654321, 0=open 1=closed

Where OOOO = The output states for outputs 4321, 0=off 1=on

Where Z,ZZ = The signal quality, the higher the number the better the signal

Where T = Relay output pulse time

Where V = Alarm repeat delay

Where YYYY = The units software version

Note : For many other commands the unit may also reply with the unit status message.

3.5 Setting relay output pulse & alarm repeat delay

You setup the relay output to only pulse ON for a few seconds, rather than staying ON permanently when a command is sent to switch it ON (see section 3.6 Turning ON & OFF outputs).

You can also setup a delay between repeat alarm SMS messages. Alarms will be repeated until an acknowledgement command is received (see section 3.7 Receiving and acknowledging alarms).

To change either of these parameters, send the following command;

SettnA B

Where "A" = The alarm repeat delay, 0=no delay, 1=1min, 2=2min..9=9min (9min is the maximum allowed)

Where "B" = The relay output pulse period, 0=no pulse (output does not pulse), 1=2sec, 2=4sec..9=18sec (18sec is the maximum allowed)

If the command is accepted the unit will reply with the unit status message.

For example;

if you send; *Settn5 0*
the unit will reply ; INP=00000 OUT=0000 SQ:15,0 T=0 W=5 S=0001

Note : The factory defaults are, alarm repeat delay = 5min, relay output pulse = 0min (output does not pulse)

3.6 Turning ON and OFF outputs

To turn ON a digital output send the following command;

SetouN

Where "N" = The output number that you wish to switch ON

If the command is accepted the unit will reply with the unit status message.

To turn OFF a digital output send the following command;

RstouN

Where "N" = The output number that you wish to switch OFF

If the command is accepted the unit will reply with the unit status message.

For example;

if you send;	<i>Setou1</i>
the unit will reply ;	INP=00000 OUT=0001 SQ:15,0 T=0 W=5 S=0001 and output 1 will be turned ON

3.7 Receiving and acknowledging alarms

The unit will only send alarm SMS messages if enabled to do so,

To enable the unit to send alarms, send the command;

Seten

If the command is accepted the unit will reply with the unit status message.

To disable the unit from sending alarms, send the command;

Setdi

If the command is accepted the unit will reply with the unit status message.

If an alarm has been generated, the unit will immediately send the appropriate alarm message to the first phonebook entry. Then, if the alarm has not been acknowledged, and after the alarm repeat delay time has passed, the message will be sent to the next phonebook entry (or to the first phonebook entry again if only one phonebook entry has been programmed). The unit will continue doing this until the alarm is acknowledged.

Note : Whilst an alarm is un-acknowledged, no further alarms will be detected or reported by the unit.

To acknowledge an alarm, send the following command;

Ackno

The unit will reply with "OK" if the command has been accepted.

Note: Only phone numbers programmed into the unit's phonebook will be able to acknowledge an alarm.

3.8 Quick setup guide

This guide explains the steps that must be taken to setup a unit for a typical application;

1. Connect power to the unit (see section 2.2) – do not power up yet.
2. Connect fault signals to the unit's digital inputs (see section 2.3)
3. Connect devices to the unit's digital outputs (see section 2.4)
4. Connect the ariel (see section 2.5)
5. If possible, check you have good mobile signal by putting the SIM card into a mobile phone.
6. Fit the SIM into the unit (see section 2.6)
7. Power up the unit
8. Send the unit status command to confirm basic operation, ie send *Getst* (see section 3.4)
9. Program phone numbers into the phonebook (see section 3.1)
10. Change default message text for each input if the factory defaults are not suitable (see section 3.3)
11. Change relay output pulse and alarm repeat delay settings if the factory defaults are not suitable (see section 3.5)
12. Test devices connected to the digital outputs (see section 3.6)
13. Enable the unit to send alarms, ie send *Seten* (see section 3.7)
14. Test an alarm input, the unit should send the correct alarm message to the first phonebook entry, second entry and so on... (see section 3.7)
15. Acknowledge the test alarm message, ie send *Ackno* (see section 3.7)

Important : Please be careful to ensure the correct phone numbers are programmed into the phonebook.

3.9 SMS Command summary

Command	Function	Description
Getst	Gets unit status	Returns digital input & output states, signal quality, timer settings and software version
Setou1	Set output 1	Turns ON digital output 1
Setou2	Set output 2	Turns ON digital output 2
Setou3	Set output 3	Turns ON digital output 3
Rstou1	Reset output 1	Turns OFF digital output 1
Rstou2	Reset output 2	Turns OFF digital output 2
Rstou3	Reset output 3	Turns OFF digital output 3
Seten	Enable alarms	Enables the unit to send SMS alarm messages
Setdi	Disable alarms	Disable the unit from sending SMS alarm messages
Settx1 <i>text</i>	Write SMS alarm text	Changes alarm text for digital input 1
...	...	...
Settx6 <i>text</i>	Write SMS alarm text	Changes alarm text for digital input 6
Setnn1 <i>+number</i>	Set phonebook entry 1	Sets phonebook entry 1 to number send in message
...	...	...
Setnn6 <i>+number</i>	Set phonebook entry 6	Sets phonebook entry 6 to number send in message
Setnr1	Set phonebook entry 1	Sets phonebook entry 1 to originating phone number
...	...	...
Setnr6	Set phonebook entry 6	Sets phonebook entry 6 to originating phone number
Clrr0	Clear phonebook	Deletes all numbers stored in the phonebook
Clrr1	Clear phonebook entry 1	Deletes the number stores at phonebook entry 1
...	...	...
Clrr6	Clear phonebook entry 6	Deletes the number stores at phonebook entry 6
SettnA <i>B</i>	Set timers	Sets the alarm repeat timer, and relay output pulse timer
Ackn0	Alarm Acknowledge	Acknowledges the SMS alarm message

4. Revisions

This manual has been based around software version 0001.

<u>Revision</u>	<u>Date</u>	<u>Changes</u>
0001	27/02/2009	First release